

**Award Number:** DAMD17-03-2-0030

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**TITLE:** Military Health Behaviors: Promotion of Healthy Weight and Fitness in Career Personnel

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**REPORT DATE:** December 2009

**TYPE OF REPORT:** Final

**PREPARED FOR:**

U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

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REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 1 Dec 2009		2. REPORT TYPE Final		3. DATES COVERED 7 APR 2003 - 30 NOV 2009	
4. TITLE AND SUBTITLE  Military Health Behaviors: Promotion of Healthy Weight and Fitness in Career Personnel				5a. CONTRACT NUMBER DAMD17-03-2-0030	
				5b. GRANT NUMBER 03311005	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)  Donald A. Williamson, Ph.D.				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Pennington Biomedical Research Center 6400 Perkins Rd Baton Rouge, LA 70808-4124  E-Mail: <a href="mailto:Williada@pbrc.edu">Williada@pbrc.edu</a>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR' S ACRONYM(S)	
				11. SPONSOR/MONITOR' S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT <input checked="" type="checkbox"/> Approved for public release; distribution unlimited <input type="checkbox"/> Distribution limited to U.S. Government agencies only - report contains proprietary information					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT - The specific aims of this research project are: 1)development of the Military Soldier Fitness Database, a computer-based data collection system that can be used to record & track the results of the Army Physical Fitness tests and measurements of body weight/fatness across time, 2)development of an environmental/Internet-based intervention to promote healthy weight through proper nutrition and physical fitness 3) test of the efficacy of and consumer satisfaction with the environmental/Internet-based intervention in a single population, i.e., Soldiers at Fort Bragg, NC. These aims fit into a three phase project completion plan. The research team from Pennington Biomedical Research Center (PBRC) has completed phases 1 and 2 of this three phase project. In Phase 1, the PBRC team studied the unique needs of the military as they pertain to the primary aims. Guided by the Executive Committee, a prototype for the computerized database was established and the architectural design of the Internet-based intervention developed. In Phase 2, PBRC personnel developed, refined, & pilot-tested the MSFD and the Internet program.Phase 3, which includes a controlled evaluation of the environmental/Internet-based intervention, has been completed. The environmental/Internet-based program was implemented in July 2006 and data are being collected via the Internet-based program through the end of July 2008. The primary endpoints of the Intervention were to determine consumer satisfaction with the program and the amount of Internet activity.					
15. SUBJECT TERMS nutrition, physical fitness, Soldiers, health, weight, body fat					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES  13	19a. NAME OF RESPONSIBLE PERSON Donald Williamson, Ph.D.
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) 225-763-3122

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## Introduction

The research project was initiated in June 2003 and was planned to end in May 2007. Due to a number of delays related to the War on Terror, the project was extended until December 2009. An initial no-cost extension of the study was obtained in April 2007. A second no-cost extension of the study was recently approved in May 2008. As described in the request for the second no-cost extension, the active promotion of the website intervention was continued through August 1, 2008.

In previous reports it was determined that the website would be "turned off" on July 31, 2009. However, while in collaboration with Dr. Andrew Young (Chief, Military Nutrition Division US Army Research Institute of Environmental Medicine), it was decided that there was an insignificant cost associated with allowing the website to continue running. Thus, the website will continue to be available for patronization by the Ft Bragg population, with no additional stated research objectives. Over the final months of the study (August 2009 -Dec 2009), statistical analyses and dissemination of the findings, as well as manuscript writing and publications are our focus.

A previous report on the progress of this study was submitted in May 2008. With the conclusion of the no-cost extension period (through Dec 2009), this report will serve as the final report for the study. The following sections will provide details about our research accomplishments in association with the Statement of Work.

The primary aim of this investigation, entitled "Military Health Behaviors: Promotion of Healthy Weight and Fitness in Career Personnel" was to provide a non-clinical, environmental approach for weight gain prevention and modest weight loss for Soldiers at Fort Bragg, NC. The program was called "Healthy Eating, Activity, Lifestyle Training Headquarters (H.E.A.L.T.H.)". Soldiers who failed to meet Army requirements for body fat defined by AR 600-9, the Army weight Control Program (AWCP), and fitness standards defined by FM 21-20, Physical Fitness Training, Army Physical Fitness Test (APFT) were the primary targets of the intervention. Soldiers with body weights that approached the maximal allowable weight as defined by AR 600-9 were also targets of the intervention. The H.E.A.L.T.H. intervention was launched in July 2006. In order to evaluate the H.E.A.L.T.H. intervention, data had been collected via the Internet-based program. Also, a health promotion program was developed to publicize the existence of the website and encourage utilization by Soldiers and Family members of Soldiers at Ft. Bragg. The health promotion program was implemented prior to the launch of the H.E.A.L.T.H. website and existed as a constant health marketing program over the duration of the Internet-based program until the end of July 2008. At that time, the promotion program was removed in order to test if Soldiers

utilized the web-based program in the absence of the promotion program for one year.

## Body

**PBRC personnel will report all activities on the grant to members of the Executive Committee in Quarterly and Annual Reports.**

This objective has been accomplished. Annual reports outlining the activity and progress of the research have been submitted throughout the duration of the Ft Bragg, HEALTH study.

Annual reports regarding the current status and progress of the *Military Health Behaviors: Promotion of Healthy Weight and Fitness in Career Personnel* study were submitted during May 2004, 2005, 2006, 2007, 2008, and 2009. Dr. Williamson recently briefed the contract officer, Andrew Young, Ph.D. in April, 2009.

Progress reports were presented at meetings with the Executive Committee. The most recent of these Executive Committee assemblies was conducted in December 2009.

Weekly conference calls were held with key personnel at Fort Bragg to monitor the progress of the Internet-based/environmental program. These calls were ended in association with the conclusion of the active promotion portion of the H.E.A.L.T.H. website on Ft Bragg by PBRC personnel at the end of July 2008.

**PBRC personnel will develop an Internet program with the following components: 1) Education Materials, 2) Weight Maintenance including AR 600-9 tables, and 3) Weight Loss Tools. The status of the website development will be reported regularly to the Executive Committee and PBRC personnel will refine the website to meet specifications at the direction of the Executive Committee.**

PBRC has completed this task. The internet program was routinely reviewed and improved.

**PBRC personnel will develop an environmental component of the weight management program at Fort Bragg, with consultation from Preventative Medicine, Nutrition Care Division, Public Affairs Office and Information Services at Womack Army Medical Center. The status of the environmental component will be reported regularly to the Executive Committee and PBRC personnel will refine the component at the direction of the Executive Committee.**

The PBRC research team has completed this task. The environmental promotion program was developed in close consultation with representatives from the Nutrition Care Division (NCD), WAMC Public Affairs Office, and Information Services Office, Ft. Bragg, NC.

Since the 2008 report, no additional changes have been made to the procedural manual for the promotion of the HEALTH website that was described in that report. This is due to the fact that all population communication and promotional efforts on Fort Bragg ceased at the end of July, 2008. The manual has been viewed and is being used as a reference guide and compliment to the environmental promotions program for H.E.A.L.T.H.

## **Key Research Accomplishments since May 2008:**

- The study at Ft. Bragg has been completed.
- Data are being analyzed and prepared for dissemination of results via presentations and publications.



## Reportable Outcomes Since May 2008:

- Stewart, et al. (2008) presented a poster entitled, "Development and Implementation of an Internet/Population-based Weight Management Program for the U.S. Army to AABT: *Association for the Advancement of Behavioral and Cognitive Therapies* at the October 2008 meeting in Orlando, FL.
- Stewart, et al. (2008) published a paper entitled, "Development of an Internet/Population-based Weight Management Program for the U.S. Army" in the *Journal of Diabetes, Science, and Technology*. The citation for this publication is: Stewart, et al. (2008). Development of an Internet/Population-based weight management program for the U.S. Army. *Journal of Diabetes Science and Technology* 2(1). Pgs 116-126.
- Williamson, et al. (2009) published a paper entitled: "Military Services Fitness Database: Development of a computerized physical fitness and weight management database for the U.S. Army". The citation for this publication is: Williamson, et al. Military Services Fitness Database: Development of a computerized physical fitness and weight management database for the U.S. Army. *Military Medicine*, 174, 1-8, 2009.
- Stewart, et al. (2009) presented an oral presentation entitled "Army Health: Development and tests of efficacy" at the *Obesity Society* meeting in Washington DC, October 2009.
- Stewart, et al. is preparing a manuscript entitled, "Efficacy of an Internet/Population-based Weight Management Program for the U.S. Army" that describes the outcome data for the Ft. Bragg project.

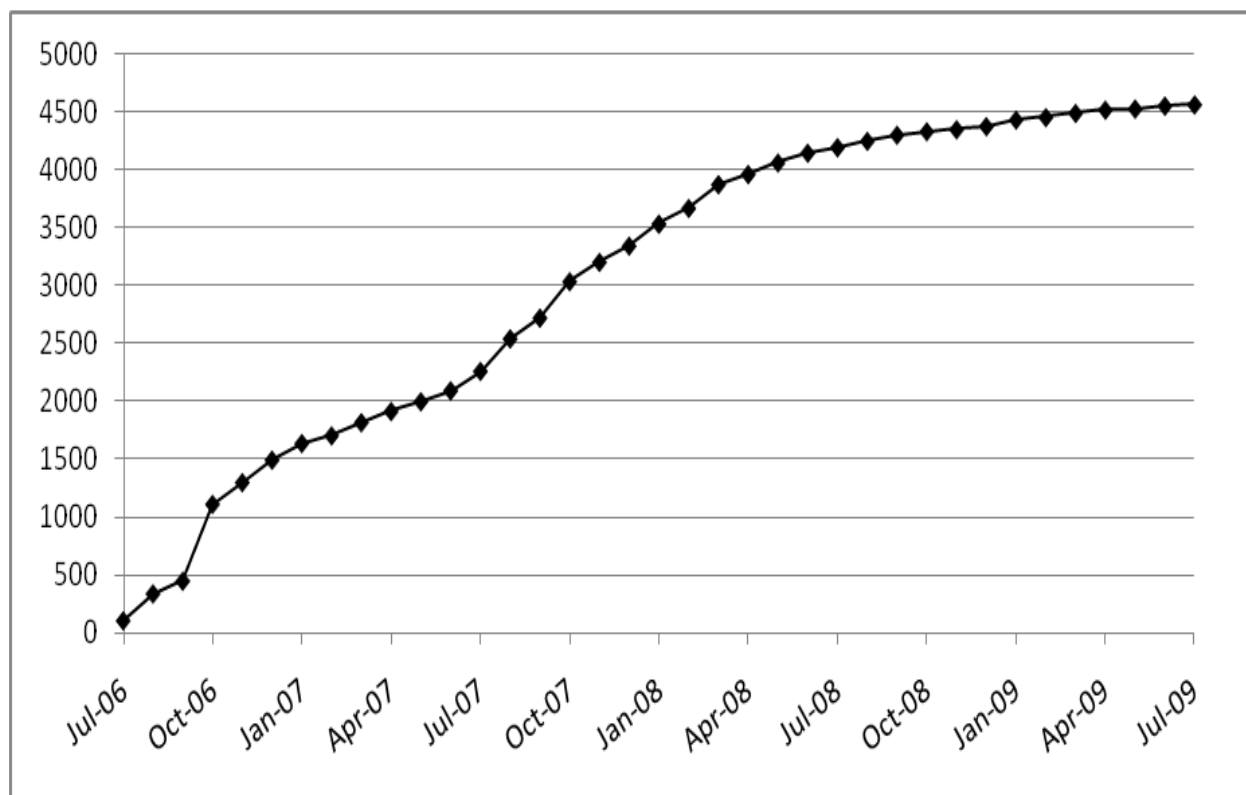
## Supporting Data

Since the launch of the Internet program, data have been continuously collected by week for Soldiers and civilians. Table 1 describes the demographic variables of the participants in the Ft. Bragg study.

		Soldier		Civilian	
		n	Mean (sd)	n	Mean (sd)
Age		2417	31.9 (8.3)	2147	37.8 (11.6)
BMI		2150	28.2 (3.9)	1990	29.7 (6.2)
		n	Percent	n	Percent
Gender	Women	755	31.2%	1798	83.7%
	Men	1662	68.8%	349	16.3%
Race	Caucasian	1401	60.0%	1206	55.5%
	African American	534	22.1%	628	28.9%
	Other	482	19.9%	338	15.6%
Years In Military	Less than 5	664	27.5%		
	5 to 10	544	22.5%		
	More than 10	944	39.1%		
	Not Entered	265	11.0%		

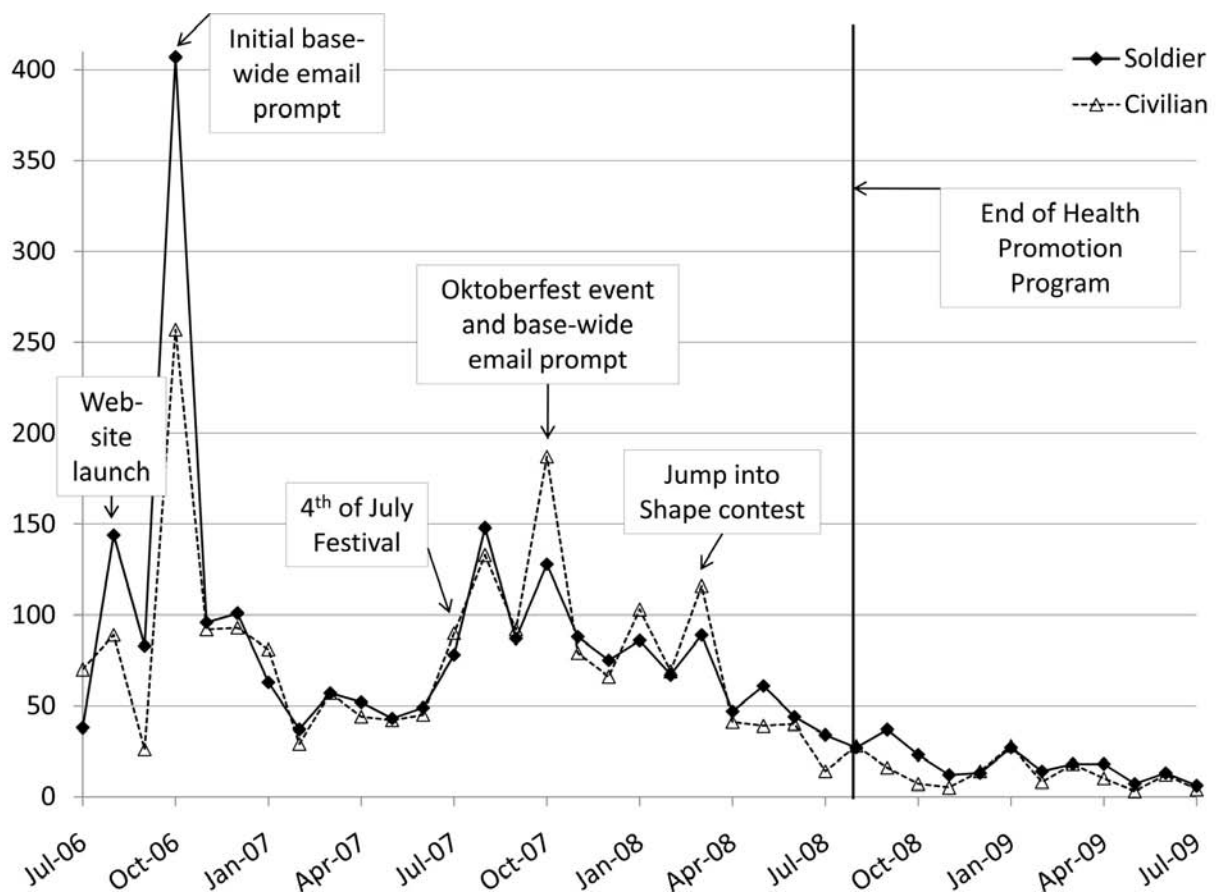
**Table 1: Demographic Description of the Participant population at Ft. Bragg**

Since the inception of the H.E.A.L.T.H. program, a running total of new registrants have been collected. As illustrated in Figure 1, the graph provides a linear depiction of the monthly addition of new Soldiers and Civilian registrants over time.



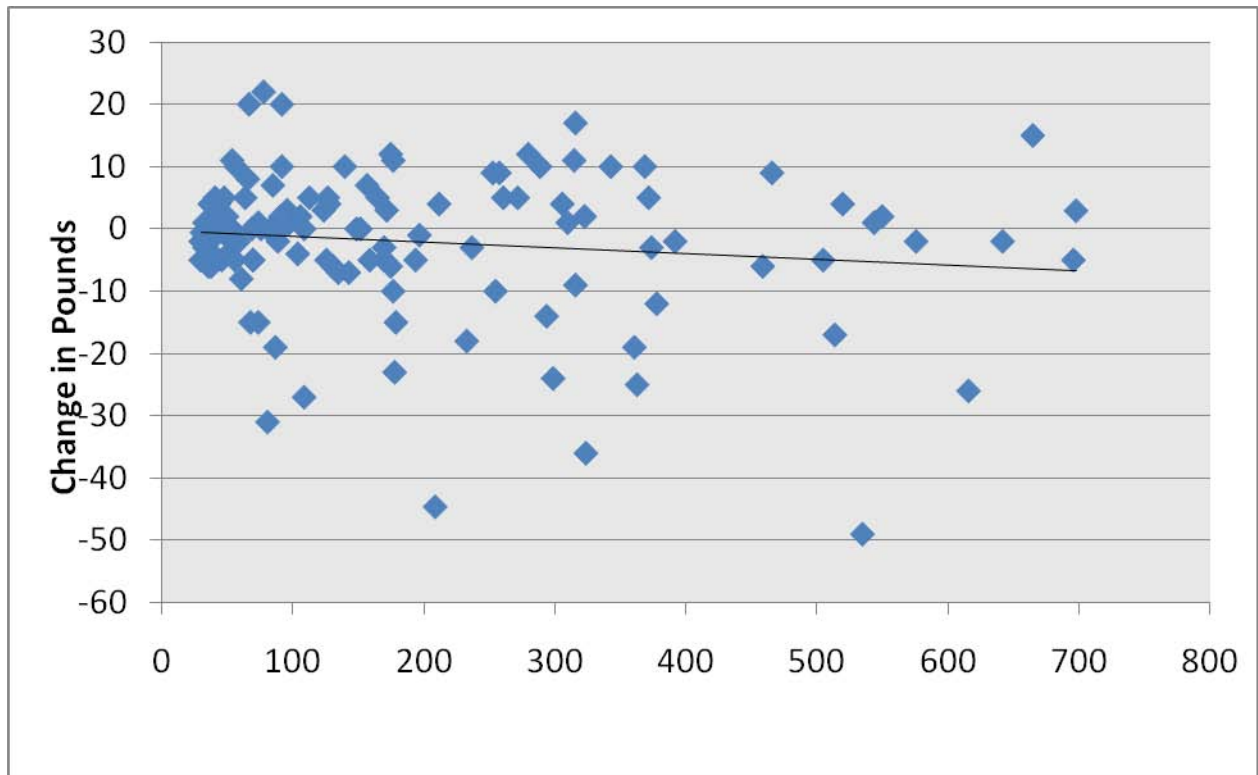
**Figure 1: Cumulative Graph of Users signing up on the website over time (Soldiers and Civilians)**

Figure 2 depicts these new user registrants in relation to the promotion program events hosted in the Ft. Bragg environment to promote usage of the website program. The end of the active promotion period has been indicated with a solid black line. Activity after this period is done without that assistance of an active promotion or population communication effort. In this manner we can make valid assumptions regarding the effectiveness of promotional communication and activities that will drive new and current users to the H.E.A.L.T.H. website. It is evident that the promotions program was useful in prompting website usage as after the promotion program ended, use of the website program decreased.

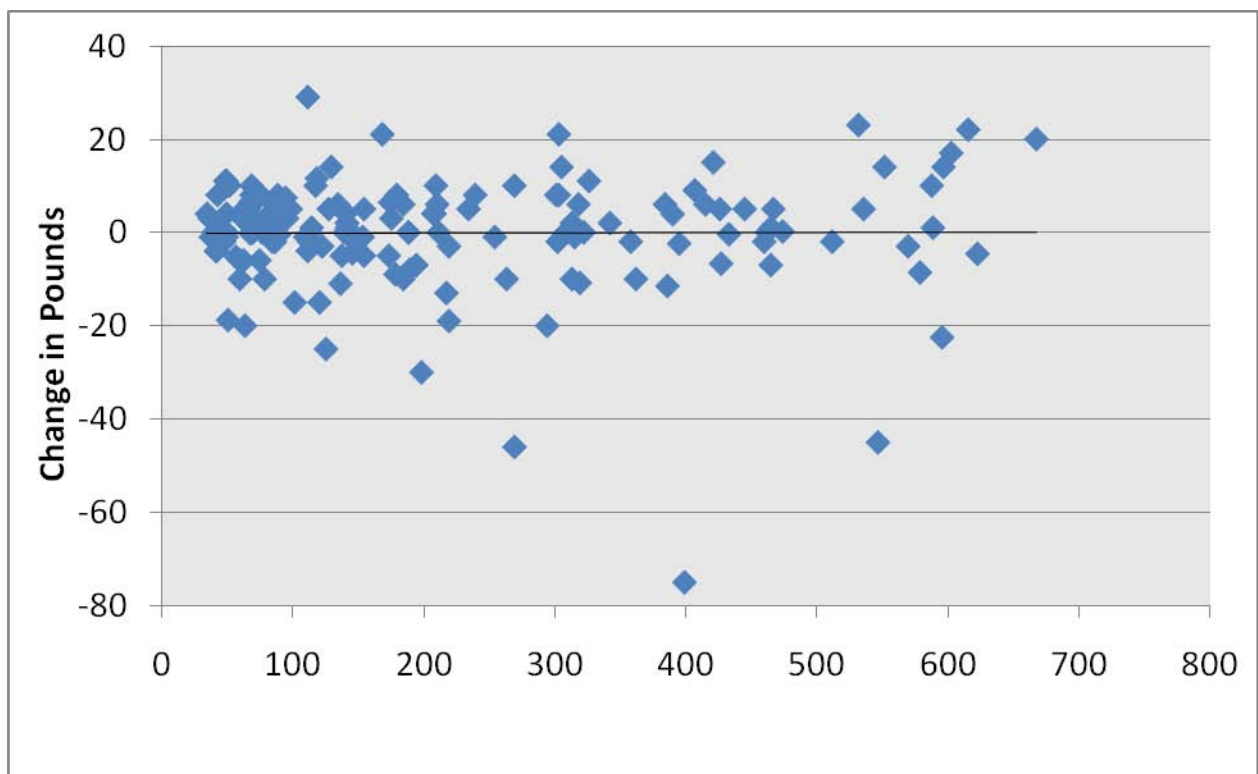


**Figure 2: New User registration over time**

Figures 3 and 4 depict change in weight related to the number of days of use of the website program for Soldiers and Civilians respectively. Overall, there was a downward trend in weight for Soldiers and a weight maintenance trend for Civilians.



**Figure 3: Weight change and number of days of use of the program (Soldiers)**



**Figure 4: Weight change and number of days of use of the program (Civilians)**